Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 2-4 and 11 are pending in the application, with claims 1-3 being the independent claims. Claims 5-7, being drawn to nonelected inventions, were previously cancelled without prejudice to or disclaimer of the subject matter therein. Claims 8-10 are sought to be cancelled without prejudice to or disclaimer of the subject matter therein. New claim 11 is sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested. Applicant respectfully requests entry of the foregoing claim amendments after final because the amendments are being made to place the claims in condition for allowance.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Objection to the Specification and Abstract

The Examiner object to the specification and the abstract because it the preliminary amendment filed on May 27, 2007 allegedly introduced new matter in the disclosure. To expedite prosecution, and without acquiescing to the objection, all amendments made in the subject preliminary amendment that are objected to in the Office Action are cancelled herein. Applicants therefore respectfully request the objection be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1 and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by EP 0 979 868 A2 to Kreader et al. ("Kreader"). Claims 1 and 2 were rejected under 35 U.S.C. §102(b) as being anticipated by Physica A (1998) 249(1): 216-225 to Gorelov et al. ("Gorelov").

Claims 1 and 8 have been cancelled, rendering their rejection moot. Applicants therefore respectfully request the rejection of these claims be withdrawn.

Claim 2 has been amended to recite "when the sample is placed in the electric field, the impurity migrates in a direction opposite to the nucleic acid," as recited in previously presented claim 9, and claim 9 has been cancelled. Gorelov does not disclosed this feature. The Examiner asserts that Gorelov teaches a cationic surfactant interacts with DNA by displacing positively charged bound counterions (i.e., sodium counterions) (see pages 223-224 of Gorelov). Since both the DNA and the displaced counterions are positively charged, when the sample is placed in the electric field, the counterions migrate in the same direction as the DNA. Further, Gorelov does not purify DNA from the counterion, and the sodium counterion is not an impurity. Accordingly, Gorelov does not disclose adjusting the charge of an impurity in a nucleic acid sample and then concentrating and purifying the nucleic acid in an electric field, as provided by claim 2. Applicants therefore respectfully request this rejection of claim 2 be withdrawn.

Rejections under 35 U.S.C. § 103

Cited references Gorelov and Irie

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gorelov publication in view of U.S. Patent No. 6,387,235 to Irie *et al.* ("Irie").

Claim 3 has been amended to recite "when the sample is placed in the electric field, the impurity migrates in a direction opposite to the nucleic acid," as recited in previously presented claim 10, and claim 10 has been cancelled. As noted above, Gorelov does not teach an impurity migrating in a direction opposite the nucleic acid, as claimed. Both the DNA and the displaced counterions are positively charged, when the sample is placed in the electric field, the counterions migrate in the *same* direction as the DNA. Further, Gorelov does not purify DNA from the counterion, and the sodium counterion is not an impurity. Accordingly, Gorelov does not disclose adjusting the charge of an impurity in a nucleic acid sample and then concentrating and purifying the nucleic acid in an electric field, as provided by claim 3. Irie also does not cure the

deficiencies of Gorelov. Applicants therefore respectfully request this rejection of claim 3 be withdrawn.

Cited references Sheldon and Asai

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,129,828 to Sheldon, III et al. ("Sheldon") in view of U.S. Patent No. 6,165,758 to Asai ("Asai").

Claim 1 has been cancelled, rendering its rejection moot. Claim 4 depends from and adds features to independent claim 3; therefore, this claim is patentable for at least the same reasons as described above with respect to claim 3. Applicants therefore respectfully request the rejection of these claims be withdrawn.

Cited references Kreader and Helenius

Claims 2-4, 9 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kreader reference in view of Helenius *et al.* (Proceedings of the National Academy of Sciences, USA (1976) 74(2):529-532 ("Helenius").

With respect to the rejection of independent claims 2 and 3 based on Kreader and Helenius, the Examiner asserts that Kreader teaches every feature of these claims but for the use of surfactants. The Examiner asserts that Helenius teaches adding surfactants to alter the electrophoretic mobility of proteins, and that it would have been obvious from the teachings of Helenius to add surfactants to the mixture of Kreader to achieve the claimed method of purifying a nucleic acid.

We disagree with the Examiner that these references may be combined so as to arrive at the claimed invention. Helenius describes methods for distinguishing proteins by electrophoresis in a *basic* pH environment (9.0 pH), wherein the proteins are in the presence of a nonionic and/or cationic surfactants. *See* page 529, col. 2 of Helenius. Kreader describes separation of nucleic acids from proteins using electrophoresis in an *acidic* pH environment (2 to 4 pH). *See* abstract of Kreader. Modification of the method of Kreader to use surfactants as taught by Helenius, creating basic pH conditions, would make the method of Kreader unfit for its intended purpose and would change its principle of operation, which is *separation by electrophoresis under acid pH conditions.*

See also MPEP 2143.01(V and VI)("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious."). Consequently, Helenius cannot be combined with Kreader to render obvious the claimed invention. Applicants therefore respectfully request the rejection of these claims be withdrawn.

Claims 9 and 10 have been cancelled, rendering their rejection moot. Claim 4 depends from and adds features to independent claim 3; therefore, this claim is patentable for at least the same reasons as described above with respect to claim 3. Applicants therefore respectfully request the rejection of these claims be withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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